

**DEPARTMENT OF TRANSPORTATION****DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-003787**Date Inspected:** 03-Sep-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 2200**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2230**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Sha Zhi**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG/T0wer**Summary of Items Observed:**

Caltrans Quality Assurance (QA) Inspector Roscoe Dixon arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China to periodically monitor welding and Quality Control (QC) functions. While on site the QA Inspector observed and or discovered the following.

**OBG Sub-Assembly Shop – Bay 1 (Deck Panel)**

Quality Assurance (QA) Inspector Dixon was present to monitor activities associated with the Production Monitoring Test (PMT) of Orthotropic Box Girder (OBG) Deck Panel U-rib welds. The PMT representing Deck panel DP386-001, and DP164-001, the 3 closed rib panel was monitored on Gantry #2.

After MT of the tack welds was accepted by ZPMC Level II MT Technician, Wang Wei, the three ribs (six welds) were simultaneously welded to the simulated deck plate in the horizontal groove (2G) welding position on (3) separate steel plates.

The Welding Procedure Specification (WPS) used was WPS-B-T-2342-U1 (Urib)-4. It is a combination procedure using gas metal arc welding (GMAW) for the root pass and submerged arc welding (SAW) for the cover or fill pass.

The filler metals used were verified to be as specified on the WPS; 1.4 mm diameter, ER70S-6 (JM-56) for GMAW and 4.8 mm diameter EH14K (H14) for SAW. During the test, QA Inspector Dixon recorded the parameters of amperage, voltage, and travel speed on the U-Ribs PMT Inspection Sheet, dated 09-04-2008, for both welding processes.

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The name of the gantry operator and each of the six welding operators' identification numbers were also recorded on the U-Ribs PMT Inspection Sheet. ZPMC Certified Welding Inspector (CWI), Sha Zhi and ABF QA Inspector Lv Yun were present during welding.

After ZPMC Certified Welding Inspector (CWI), Sha Zhi and ABF QA Inspector Lv Yun performed visual inspection on the welds. The Quality Assurance (QA) Inspector Dixon also performed random visual inspection of the GMAW tack welds, GMAW root pass and the SAW cover pass, items observed appear to comply with project specifications.

Following completion of the welding ZPMC QC CWI Inspector Sha Zhi marked a 500 mm length of the welds as being the areas that are to be representative of this PMT test. QA Inspector Dixon observed ZPMC NDE inspector Mr. Xue Hai Rong performing ultrasonic testing on the partial penetration evaluation of each of the six welds in the areas where the CWI had marked for PMT testing.

Following Mr. Rong's acceptance the QA Inspector Dixon marked a total of 15 locations where macro-etch samples are to be obtained from three of the U-ribs that were welded to the separate steel plates. ZPMC then cut and prepared the macroetch samples.

ZPMC QC CWI Inspector Mr. Sha Zhi, ABF representative Lv Yun and Caltrans QA Inspector Dixon visually inspected these macroetch samples and documented their acceptance on the ZPMC "Production Monitoring Test Plate Inspection Report sheet dated 09-04-2008, items observed by the QA Inspector Dixon appear to generally comply with project specifications.

The QA Inspector recorded information for all ten PMT specimens on an Excel spreadsheet titled "SAS OBG PMT Macroetch Log" and a copy of this file is posted on the Caltrans "Team China" internal common drive which is accessible to all Quality Assurance personnel including Task Leaders and Structural Materials Representatives.

### Summary of Conversations:

As noted within the report shown above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Ady Velasco, (818) 292-0659, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Dixon,Roscoe	Quality Assurance Inspector
<b>Reviewed By:</b>	Lanz,Joe	QA Reviewer

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